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Frequently asked questions

I have installed it, what to do next?

See the Getting started section. You may be confused that you have few different executables installed. There are two command line solvers (gsvit, gsvit2d) and a single graphical user interface (XSvit). To have something easy-to-use, start with the XSvit.

What is the GSvit2D and does it have any GUI?

GSvit2D is a subset of FDTD routines for 2D calculations. These are of minor use and we have no GUI for them so far. To explore full benefits of FDTD we recommend to use 3D variant (GSvit, XSvit).

**Which graphics card to use?**

In principle, all the Nvidia CUDA enabled cards should work, however a really cheap card can result in only very small calculation speedup. The best choice are gaming cards, that are already very powerful, but still not expensive like special computing ones. GSvit is intentionally written to work with floats wherever on graphics card possible to get reasonable speedup on older and less developed cards (as the doubles were supported later and also are still a bit slower).

Results are strange while computing on graphics card, why?

The algorithm that you want to use might be not implemented on graphics card yet. This is namely case of some newer algorithms or algorithms that are still in the phase of implementation. Some of these (and general discussion on graphics card performance) are listed on the graphics card use page. There are also some automated tests available, however the possible number of source/material/boundary conditions is large and it is not easy to test all of them. The safe way is to cross-check the calculation on graphics card with results obtained on computer processor when setting up a novel simulation.

What else can be used for FDTD calculations?

There are many other FDTD packages available elsewhere, either commercial (e.g. Lumerical) or open source (e.g. Meep). We don't claim that GSvit overcomes any of them in any sense, even if we do our best to do so.
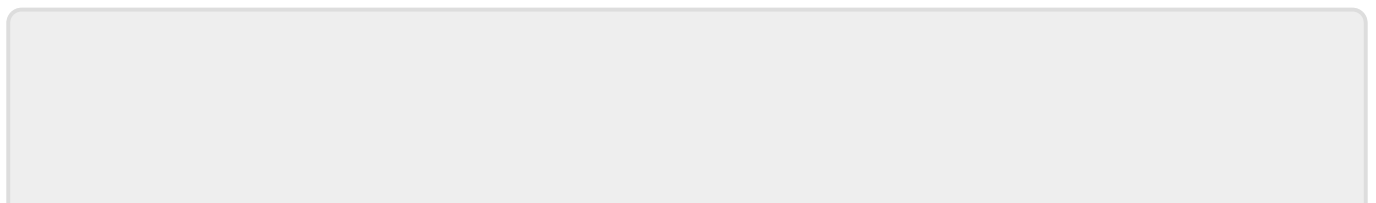
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